

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) A fluid processing disposable set comprising:

a fluid port;

a variable-volume chamber in fluid communication with the fluid port, the chamber defined by a rigid wall and an elastic wall; and

a rigid bottom surface spanning the variable-volume chamber, limiting, at least in part, the upward movement of the elastic wall and comprising a ~~an~~ perforate interior wall located within the chamber, the rigid bottom surface being substantially flat across the chamber, and the interior wall having at least one hole for permitting the passage of fluid therethrough;

the elastic wall formed by a convoluted diaphragm with a region of convolution, the region of convolution separated from the center of the elastic wall by a region without convolution, such that the region without convolution is substantially adjacent to the substantially flat rigid bottom surface ~~substantially overlying the rigid bottom surface~~, when in an unstretched state.

2. (Original) A fluid processing disposable set according to claim 1 further comprising:

a rotary seal coupled to the fluid port, the rotary seal fluidly coupled to the chamber.

3. (Cancelled)
4. (Previously presented) A fluid processing disposable set according to claim 1, wherein the convoluted diaphragm has at least one fold.
5. (Previously presented) A fluid processing disposable set according to claim 4, wherein the convoluted diaphragm has a plurality of folds, the folds located symmetrically about an axis.
6. (Currently amended) A fluid processing disposable set comprising:
 - a fluid port;
 - a variable-volume chamber in fluid communication with the fluid port, the chamber defined by a rigid wall and an elastic wall, the elastic wall sealed only at a mounting position on the rigid wall and formed by a shaped diaphragm; and
 - a rotary seal coupled to the fluid port, the rotary seal fluidly coupled to the chamber, wherein the shaped diaphragm is essentially planar in an unstretched position, the diaphragm varying in thickness so as to have a local maximum in thickness outside immediate vicinity of the mounting position the mounting position's immediate vicinity.
7. (Original) A fluid processing disposable set according to claim 6, wherein the thickness is constant at locations equidistant from an axis.

8. (Previously presented) A fluid processing disposable set according to claim 1, wherein the rigid bottom surface further comprises a portion of the rigid wall.
9. (New) A fluid processing disposable set according to claim 1, further including a discrete pocket within the convolution.
10. (New) A fluid processing disposable set according to claim 9, further including a chuck with a feature to accept the discrete pocket.
11. (New) A fluid processing disposable set according to claim 1, wherein the convoluted diaphragm is asymmetrically convolved.
12. (New) A fluid processing disposable set according to claim 11, further including an asymmetric chuck.
13. (New) A fluid processing disposable set according to claim 6, further including a rigid bottom surface limiting, at least in part, the upward movement of the elastic wall.
14. (New) A fluid processing disposable set according to claim 13, wherein the rigid bottom surface is substantially flat.

15. (New) A fluid processing disposable set according to claim 14, further including an interior wall located within the chamber and forming a part of the rigid bottom surface.

16. (New) A fluid processing disposable set according to claim 15, further including at least one hole within the interior wall for permitting the passage of fluid therethrough.

17. (New) A fluid processing disposable set according to claim 1, further including a groove within the rigid bottom surface permitting passage of fluid through the groove to the hole.

18. (New) A fluid processing disposable set according to claim 8, further including a groove within the rigid bottom surface permitting passage of fluid through the groove to the hole.

19. (New) A fluid processing disposable set according to claim 16, further including a groove within the rigid bottom surface permitting passage of fluid through the groove to the hole.

20. (New) A fluid processing disposable set comprising:

a fluid port;

a variable-volume chamber in fluid communication with the fluid port, the chamber defined by a rigid wall and an elastic wall; and

a rigid bottom surface spanning the variable-volume chamber, limiting the upward movement of the elastic wall and comprising an interior wall located within the chamber, the rigid bottom surface being substantially planar across the chamber, and the interior wall having at least one hole for permitting the passage of fluid therethrough;

the elastic wall formed by a diaphragm with at least one convolution, the convolution being a contiguous region of the diaphragm where the diaphragm in an unstretched state departs from the plane of the rigid bottom surface.

21. (New) The fluid processing disposable set of claim 20, wherein the convolution is symmetrically disposed about an axis of rotation of the diaphragm.

22. (New) The fluid processing disposable set of claim 21, further including a chuck with a core, the convolution distendable into the core.

23. (New) The fluid processing disposable set of claim 20, wherein the convolution is exclusive of an axis of rotation of the diaphragm.

24. (New) The fluid processing disposable set of claim 23, further including a chuck with a core, the convolution distendable into the core.

25. (New) The fluid processing disposable set of claim 23, further including a plurality of convolutions.

26. (New) The fluid processing disposable set of claim 25, further including a chuck with a core with core features, the core features discretely and symmetrically positioned about the axis of rotation of the chuck and the convolutions discrete, symmetrically positioned about the axis of rotation of the chuck, and distendable into the core features.

27. (New) The fluid processing disposable set of claim 25, further including a chuck with a core with core features, the core features discretely and asymmetrically positioned about the axis of rotation of the chuck and the convolutions discrete, asymmetrically positioned about the axis of rotation of the chuck, and distendable into the core features.